December 13, 2006

Summary of CVPIA Section 3406 (b)(2) fish actions in Water Year 2006

In 1992, Section 3406 (b)(2) of the Central Valley Project Improvement Act (CVPIA) established an annual allocation of 800,000 acre-feet of CVP yield to be used for the primary purpose of fish, wildlife, and habitat restoration; to assist the State of California in meeting the Water Quality Control Plan, and to help meet post-1992 ESA obligations.

Most of the (b)(2) fish actions since the passage of the CVPIA have focused on: instream flow augmentations on CVP-controlled streams to protect and restore salmon and steelhead, Keswick and Nimbus flow augmentations for delta requirements, Tracy export reductions to protect at-risk fish species (notably salmon, steelhead and delta smelt), and Goodwin flow augmentation to help meet WQCP and ESA requirements for San Joaquin River flows at Vernalis.

All (b)(2) fish actions have been implemented in a manner consistent with the Department of Interior's May 2003 (b)(2) Decision, which contributes to the CVPIA's goal of doubling natural production of anadromous fish and tries to provide concurrent benefits to other fish and wildlife, including endangered species.

Water Year 2006 b2 actions (October 1, 2005 through September 30, 2006)

In the Fall of 2005, Interior banked unused (b)(2) water from Water Year 2005 for potential use in Water Year 2006 in Shasta Reservoir (80,000 AF) and Folsom Reservoir (45,000 AF). Of this amount approximately 800 AF (0.8 TAF) was used in October and November for a pilot study on pre-wetting flows in the Cosumnes River. The remaining banked (b)(2) water started spilling in an accounting sense out of Shasta and Folsom reservoirs when flood control releases commenced in December 2005.

Water Year 2006 was a wet year, and with the exception of Clear Creek the CVP-controlled streams (i.e., Sacramento, American, and Stanislaus rivers) were characterized by flood control operations from mid-December 2005 through April 2006.

In Water Year 2006 the following (b)(2) fish actions were taken:

- Approximately 800 AF of banked (b)(2) water from the prior year (WY 2005) was routed from Folsom reservoir through the Folsom South Canal to release approximately 10-40 cfs into the **Cosumnes River** in October and November of 2005 to conduct a pilot study on pre-wetting flows and groundwater interactions.

- Increased flows in **Clear Creek** to approximately 90-200 cfs from low base levels of 50–100 cfs throughout the year to improve habitat conditions for anadromous fish, including benefits to Chinook salmon and steelhead upstream migration, spawning, egg incubation, rearing, and downstream migration.

- Closed **Delta cross channel** gates December 3, 2005 to protect emigrating juvenile salmonids from the Sacramento basin, including listed Chinook salmon and steelhead.

- Maintained the **Sacramento River** at approximately 5,000 cfs in December to maintain habitat conditions for Chinook salmon and steelhead upstream migration, spawning, egg incubation, and rearing while incidentally ensuring good water quality in the delta with the Cross Channel gates closed. The base case kept the Cross Channel gates open and therefore it is thought that it would have required less fresh water to maintain good salinity conditions in the delta. As a result, the base case Keswick release went down.

- On the **American River** (b)(2) fish actions were not required in WY 2006, as base flows were sufficient to protect anadromous fish species throughout the year.

- Augmented base flows with acquired water and some (b)(2) in the **Stanislaus River** to approximately 350 cfs in the fall and early winter to improve habitat conditions for Chinook salmon and steelhead upstream migration, spawning, egg incubation, and rearing. Approximately 13,500 AF of acquired water was used to release 1,000 cfs for 8 days in October to improve habitat conditions for Chinook salmon upstream migration. Due to wet conditions, additional (b)(2) water was not required for the remainder of the year.

- Base case export pumping in March was higher than actual pumping levels in order to support a higher base case allocation.

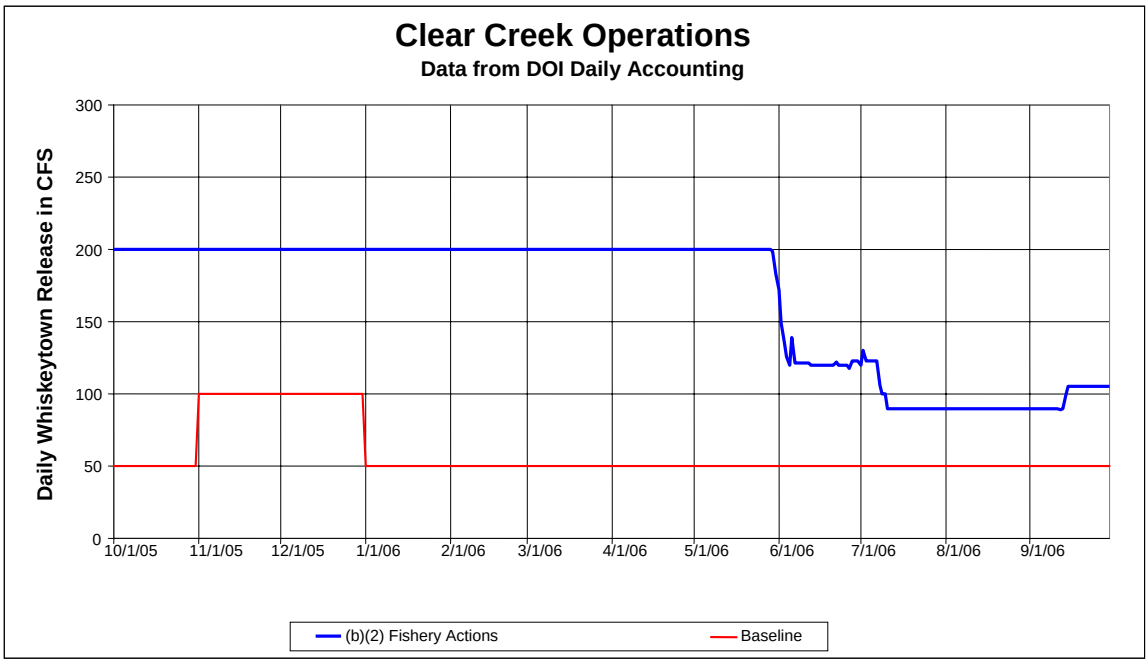
- Reduced **Delta exports** to approximately 6,000 cfs (combined) from April 26 – May 2, 2006 to protect emigrating juvenile San Joaquin basin salmon.

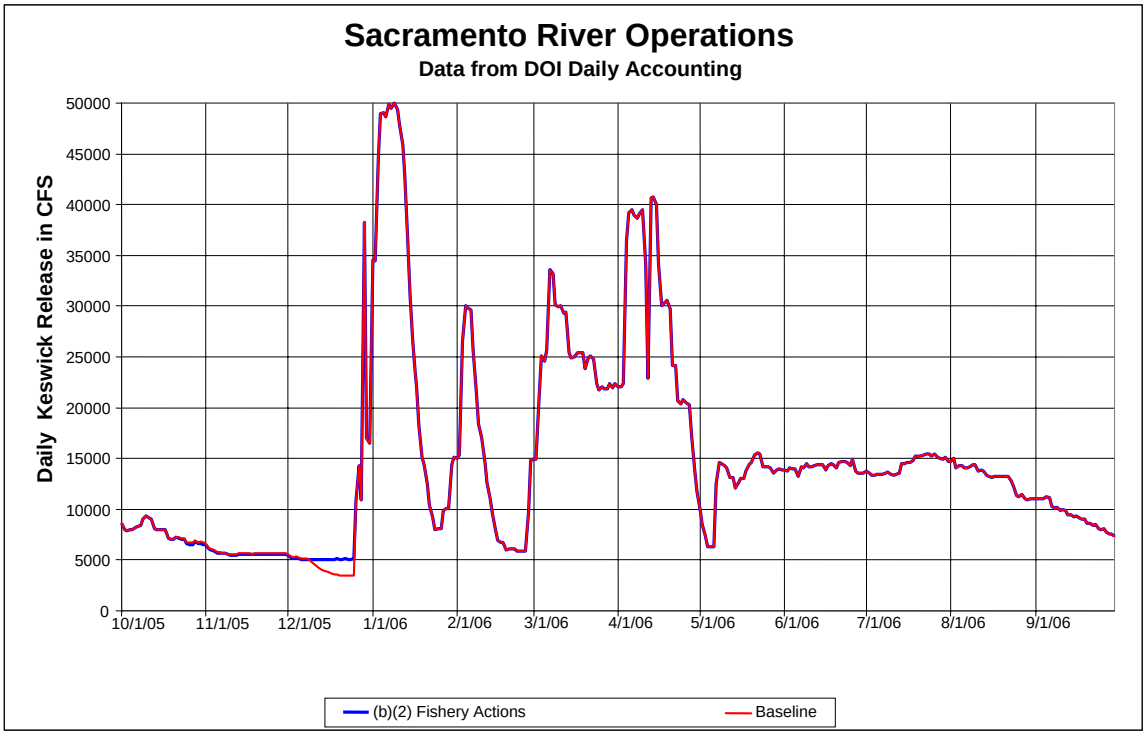
- Reduced **Delta exports** May 3 – June 2, 2006 to protect juvenile Chinook salmon, delta smelt and conduct the VAMP experiment, which examines the relationship between Vernalis flows, export levels, and survival of emigrating juvenile San Joaquin basin salmon. In 2006 the VAMP experiment was conducted with two export targets for two weeks at each export level:

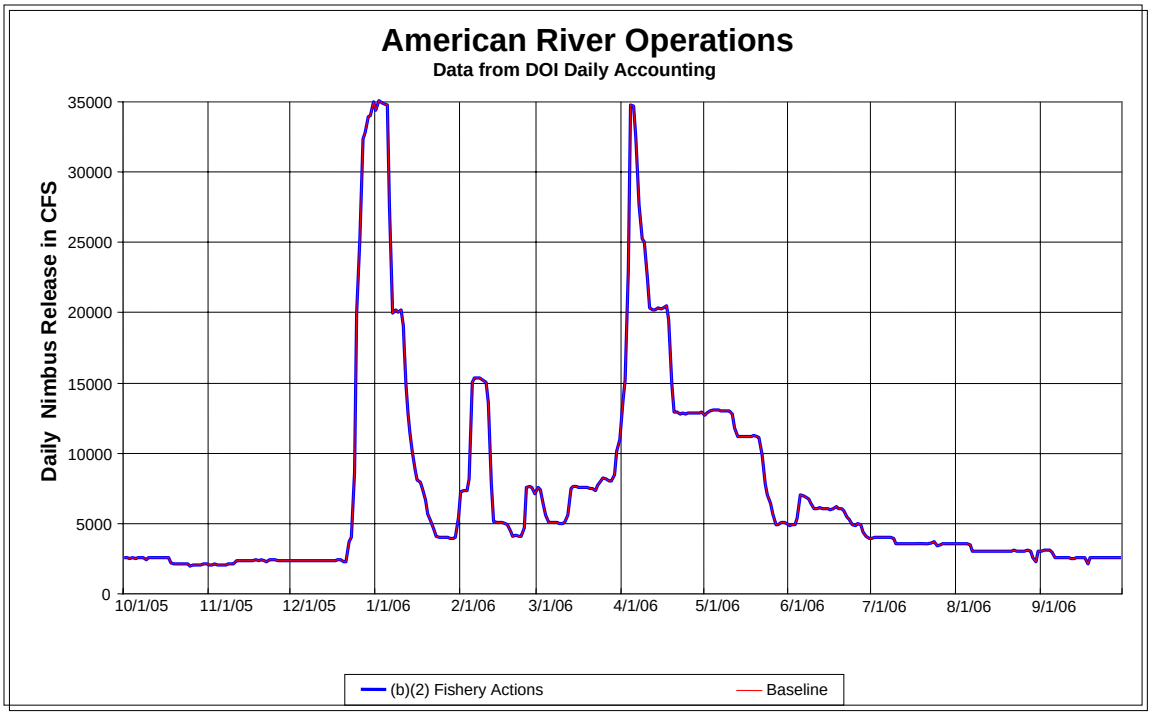
    - 1,500 cfs combined from May 3 – May 17
    - 6,000 cfs combined from May 18 – June 2

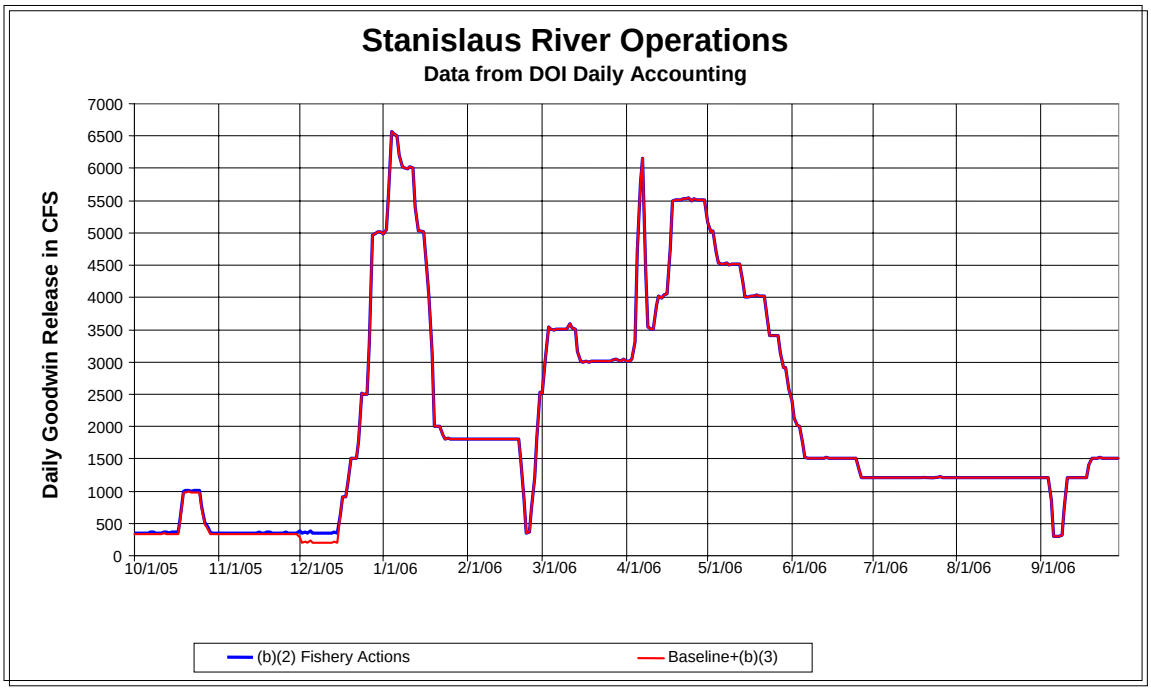
- Maintained a reduced **Delta export** level of 6,000 cfs (combined) from June 3 - 21 to help protect emigrating juvenile San Joaquin basin salmon.

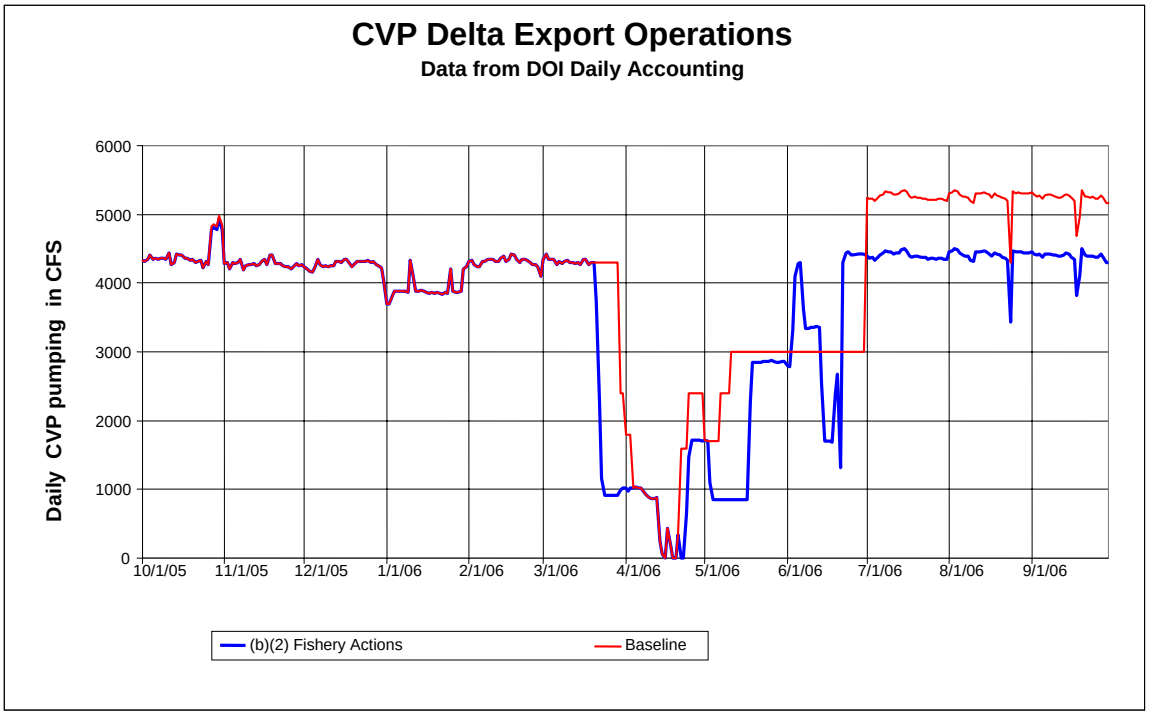
Due to the wet conditions in Water Year 2006 only 422,000 AF of (b)(2) water was used for fish actions, and approximately 195,000 AF has been banked in Shasta Reservoir. The remaining 183,000 AF has been made available for other CVP project purposes.


Clear Creek Operations
Data from DOI Daily Accounting
Daily Whiskeytown Release in CFS
300
250
200
150
100
50
0
10/1/05
11/1/05
12/1/05
1/1/06
2/1/06
3/1/06
4/1/06
5/1/06
6/1/06
7/1/06
8/1/06
9/1/06
(b)(2) Fishery Actions
Baseline


Sacramento River Operations
Data from DOI Daily Accounting
Daily Keswick Release in CFS
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
10/1/05
11/1/05
12/1/05
1/1/06
2/1/06
3/1/06
4/1/06
5/1/06
6/1/06
7/1/06
8/1/06
9/1/06
(b)(2) Fishery Actions
Baseline


American River Operations
Data from DOI Daily Accounting
Daily Nimbus Release in CFS
35000
30000
25000
20000
15000
10000
5000
0
10/1/05
11/1/05
12/1/05
1/1/06
2/1/06
3/1/06
4/1/06
5/1/06
6/1/06
7/1/06
8/1/06
9/1/06
(b)(2) Fishery Actions
Baseline


Stanislaus River Operations
Data from DOI Daily Accounting
Daily Goodwin Release in CFS
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
10/1/05
11/1/05
12/1/05
1/1/06
2/1/06
3/1/06
4/1/06
5/1/06
6/1/06
7/1/06
8/1/06
9/1/06
(b)(2) Fishery Actions
Baseline+(b)(3)


CVP Delta Export Operations
Data from DOI Daily Accounting
Daily CVP pumping in CFS
6000
5000
4000
3000
2000
1000
0
10/1/05
11/1/05
12/1/05
1/1/06
2/1/06
3/1/06
4/1/06
5/1/06
6/1/06
7/1/06
8/1/06
9/1/06
(b)(2) Fishery Actions
Baseline